Claims

1. A fuel injection device (20) for an internal combustion engine, in particular with direct fuel injection, having at least two valve elements (34, 36), of which one valve element (36) has a pressure face (38) acting in the opening direction, which defines a pressure chamber (40, 43), and an actuating device (50) acting in the closing direction, and of which another valve element (34) has a hydraulic control face (58), acting in the closing direction, which defines a hydraulic control chamber (60) that communicates at least from time to time with a high-pressure connection (24), and an actuating device (51) acting in the opening direction, and having a control valve (64), which can connect the control chamber (60) with a low-pressure connection (28), characterized in that it includes an axial boundary face (66), which in a first terminal position connects the pressure chamber (40, 43) with only the low-pressure connection (28) and connects the control chamber (60) with the high-pressure connection (24), in a second terminal position connects the pressure chamber (40, 43) at least predominantly with the high-pressure connection (24) and substantially disconnects at least one region of the control chamber (60) from the high-pressure connection (24), and in an intermediate position connects the pressure chamber (40, 43) at least predominantly with the high-pressure connection (24) and also connects the control chamber (60) with the high-pressure connection (24).

2. The fuel injection device (20) as defined by claim 1, characterized in that the additional valve device (66) has a cylindrical switch body (68) that has a first valve

edge (72), which disconnects the pressure chamber (40, 43) from the low-pressure connection (28); a second valve edge (76), which connects the pressure chamber with the high-pressure connection (24); and a hydraulic control face (92), which defines the hydraulic control chamber (60).

3. The fuel injection device (20) as defined by claim 2, characterized in that a fluid conduit (88) which at least from time to time connects the high-pressure connection (24) with the control chamber (60) is embodied in the switch body (68).

4. The fuel injection device (20) as defined by claim 3, characterized in that the fluid conduit (88) includes a flow throttle restriction (90).

5. The fuel injection device (20) as defined by one of claims 3 or 4, characterized in that at an axial boundary face of the control chamber (60), there is a sealing portion (94), at which the switch body (68) comes to rest in the second terminal position, and which in this second terminal position of the switch body (68) disconnects a region of the control chamber (60), defined by the control face (58) of the second valve element (34) and connectable with the low-pressure connection (28), from a region of the control chamber (60) that communicates with the fluid conduit (88).

6. The fuel injection device (20) as defined by one of the foregoing claims, characterized in that the actuating device (50) acting in the closing direction on the first valve element (36) is designed such that the first valve element (36) opens at a comparatively slight pressure at the high-pressure connection (24).

7. The fuel injection device (20) as defined by one of claims 2 through 6, characterized in that the switch body (68) has a central through opening (70), in which one portion (56) of the second valve element (34) is guided.